PROFITABILITY - CAPITAL STRUCTURE TRADE OFF: CASE OF PUBLICLY ROMANIAN COMPANIES

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Abstract: *There is an increasing number of empirical works that test what drives firm profitability, since it is an objective and at the same time a frame of how a company is performing. The main aim of this paper is to test capital structure, noncurrent assets ratio and tax rate as determinants for profitability, with capital structure as main focus. Using a sample of 62 publicly Romanian for period 2001-2011 and panel data model the results suggest that financial statement variables considered are significant in gauging profitability. It was concluded that there is evidence for pecking order theory and firms with large amounts of noncurrent assets are under performing.*

1. Introduction

Profitability is an important topic since it is an objective and at the same time a frame of how a company is performing. Not least, this effect has several implications for stakeholders, especially for listed companies.

There could be identified two major streams of research regarding determinants of firm profitability. First, economic tradition highlights the importance of external market factors in generating performance. Second, organizational approach is based on behavioral and sociological paradigm and suggests that organizational outcome is influenced by managers. In an integrated examination, factors from both streams seem to be as significant determinants for profitability. Furthermore, the results indicated that factors from organizational paradigm explain about twice as much variance in firm profit rates in comparison with factors from economic paradigm (Hansen and Wernerfelt, 1989).

Hirschey and Wichern analyze the accounting and market-value measures as determinants of firm profitability. Both types of measures can be used with caution as determinants of profitability, particularly R&D intensity, TV advertising, leverage and industry growth appearing to be important (Hirschey and Wichern, 1984). Using a simultaneous equation model, Brush et. al examine the relative influence of industry, corporate and business unit on firm profitability. They found that corporations have a larger influence over profitability in comparison with industry influence (Brush et al., 1999).

The main aim of this paper is to test the capital structure through debt ratio as determinant for profitability for Romanian companies, an emerging country. In order to improve the model two control variables were added, noncurrent assets ratio and tax rate. In this respect, the paper focuses on return on sales ratio as profitability measure and three variables that could influence it. In terms of methodology, panel

data model is employed by using fixed effects and random effects models. The results suggest that financial statement variables considered are significant in gauging profitability.

The paper is organized as follow. After this brief introduction, second section comprises a literary overview of empirical research regarding determinants of firm profitability. Section three describes the data collection, proposed model and the hypotheses for variables used in model. Section four reports data characteristics and empirical results. Section five concludes.

2. Literature review

There is an increasing number of empirical works that test what drives firm profitability, according to specific areas from literature. For instance, in industrial economics literature there are two approaches, Structure-Conduct-Performance paradigm (SCP) and Persistence of Profit (POP) respectively. Traditional SCP paradigm approach states that profitability is determined by structural characteristics of the market such as concentration, economies of scale, barriers to entry and exit (Slater and Olson, 2002), while POP approach focuses on the time-series behavior of profitability, suggesting that any temporary deviation of firm profitability from market average is quickly adjusted through entry and exit effects (Goddard et al., 2006).

Another area of the literature, strategic management respectively, highlights the importance of internal resources as determinants of variations in firm profitability, since the main source of heterogeneity in profitability is considered management practices (Barney, 2001). The accounting and finance literature suggests the random walk hypothesis, i.e. the importance of a random walk model for time-series changes. Common measures for profitability such as return on assets, equity or sales were examined and similar findings with POP approach form industrial economics were reported (Callen, 2001).

However, it is well known that financing decision trigger important effects for company value since optimal capital structure lead to maximum level of profitability (Pirtea et al., 2010). At the same time, profitability depends on firm risk level, which can be measured in several ways (Anis et al., 2011).

A related strand of the literature has been examined financial statements drivers that could have an impact on firm profitability. Using a sample of 1384 firms from Belgium, France, Italy and UK, Goddard et al found that profitability is negatively related with size and gearing ratio and positively related with market share and liquidity (Goddard et al., 2005). In a multiple regressions model for Hindalco Industries Limited it was found that current ratio, liquid ratio, receivables turnover ratio and working capital to total assets ratio influence profitability (Singh and Pandey, 2008). A study over USA companies included in Standard and Poors Index suggests that variables such as sales, current ratio, debt-to-equity ratio, net profit margin, human capital investment, historical performance and industry diversification have influence on generating profitability (Nagy, 2009).

Few empirical findings with inconclusive results were performed for Romanian companies. In a sample of 18 companies, the results suggest that profitability is either negative or positive related with intangible assets, depending on profitability measure or industry sector (Purcărea and Stancu, 2008). Matiş et al. conducted a study in order to highlight the significance of Jones, Dechow and Kasznik models for 101 publicly Romanian companies that record a discrepancy between reporte cash

flow and reported net income. They conclude that Jones and Dechow model appears to be significant at 10% level. In this respect, total accruals is positively related with changes in revenues, negatively related with property plants and equipments or change in revenues minus change in net account receivable (Matiş et al., 2010). In a time-series model for a chemical company it was found that profitability is positively related with the efficiency of inventories, debt level, financial leverage or efficiency of capitals and negatively related with fixed assets ratio (Burja, 2011).

3. Data and methodology

Data were collected from statistical department of the Romanian Ministry of Finance. This database provides accounts data starting from 1999 for all Romanian companies. Given the aim of the paper, it was decided to restrict the sample to listed companies at Bucharest Stock Exchange from tier 1, 2 and 3 for which ten years data were available. The reliability of financial statements was the reason for using publicly companies. In order to offer shares more attractive, listed companies have an incentive to present fair profit. As a comparison, private companies hide profit in order to avoid tax and thus it is likely that their financial statements do not reflect true results. Due to the specific nature of their activities, banking and financial firms were excluded from the sample. Finally, the sample was trimmed by dropping the outliers that could influence empirical results. Thus a balanced panel set of 682 year observations was obtained, with observations of 62 companies over the 2001-2011 period.

In order to capture profitability, various financial ratios can be used as a proxy. Among these, could be mentioned return on assets, return on equity and return on invested capital, each of them having pros and cons arguments. Instead of these frequently measures, it was used a measure for evaluating company's operational efficiency, profitability (PROF), calculated by dividing net income to sales.

Profitability could be affected by several variables at firm level. According to the purpose of this research, debt ratio (DR) expressed as total debts divided by total assets is used as a proxy for capital structure. The existing findings suggest that higher debt ratio generate higher costs and will lead to lower profitability.

Hypothesis 1: "Capital structure and profitability are negatively related"

Except capital structure, additional two control variables were used in order to improve the model. Investments could generate either scale economies or diseconomies of scale and thus noncurrent assets ratio (NCAR) expressed as noncurrent assets divided by total assets was used as a proxy for size.

Hypothesis 2: "Size and profitability are either positively or negatively related, according to main driver of the growth"

When companies perform better higher profitability means higher amount of tax payments and tax rate (TR) expressed as taxes paid divided by taxable income was included as a proxy for taxation

Hypothesis 3: "Tax rate and profitability are positively related"

The empirical model is estimated using panel data model, which allows controlling for variables one cannot observe or measure and for unobservable variables that change over time but not across companies (Baltagi, 2008). According to variables aforementioned, the empirical model is as follow:

$$\text{PROF}_{i,t} = \alpha + \beta_1 * \text{DR}_{i,t} + \beta_2 * \text{TR}_{i,t} + \beta_3 * \text{NCAR} + u_{i,t} \qquad (1)$$

with $u_{i,t} = \mu_i + \lambda_t + \nu_{i,t}$ where μ_i denotes the unobservable firm effect to allow for unobserved influences on the profitability for each firm, λ_t denotes the unobservable time effect that control for the impact of time on profitability and $\nu_{i,t}$ is the idiosyncratic error component.

It worth be noticed that Equation 1 is a static panel model with two way error component, in which a full set of individual firm effects, μ_i, and time effects, λ_t, control for all cross-sectional and time series variation in profitability. In this respect, Equation 1 can be viewed as a model of the drivers of the short-run variation in profitability that would still remain unexplained after each set of effects. The availability of ten time-series observations requires data to be pooled and estimated with common slope. This procedure is in contrast with standard practice in corporate finance literature, in terms of time-series properties, but has the advantage of providing more accuracy coefficients.

4. Results

This section exhibit the results for profitability empirical model described in previous section. Summary statistics for the variables included in model are reported in table 1. Particularly, there are 2 sections, panel A for descriptive statistics and panel B for correlation matrix.

Table 1: Summary statistics

Panel A – Descriptive statistics				
	PROF	**DR**	**TR**	**NCAR**
Mean	0.019	0.402	0.178	0.567
Median	0.035	0.374	0.171	0.557
Minimum	-3.555	0.005	-3.161	0.097
Maximum	1.247	1.698	2.552	0.981
Std. dev.	0.243	0.258	0.285	0.197
Panel B – Correlation matrix				
	PROF	**DR**	**TR**	**NCAR**
PROF	1			
DR	-0.357	1		
TR	0.117	-0.135	1	
NCAR	-0.024	-0.279	0.003	1

Source: Author calculation

It worth to be noticed that for publicly Romanian companies profitability is very low, with an average of 0.019. At the same time, investment policy is focused on non-current assets, since the average is higher than 50%. The average debt ratio (0.402) is similar with other emerging countries (Czech Republic) and lowers than in developed countries. Tax rate and profitability present some volatility, while skewness is observed for debt ratio and tax rate.

Correlation matrix highlights low correlations between variables, suggesting no multicolinearity issue. Furthermore, profitability is negatively correlated with debt

ratio and noncurrent assets ratio and positively with tax rate which is consistent with the literature review.

In order to test the model proposed two estimation methods were employed, fixed effects (FEM) and random effects model (REM) respectively. Table 2 reports the results for both methods, i.e. in column 2 are reported results for FEM and in column 3 are reported results for REM.

Table 2: Results

VARIABLES	COEFFICIENTS	
	FEM	REM
DR	-0.213***	-0.228***
	(0.026)	(0.022)
TR	0.026*	0.026*
	(0.013)	(0.013)
NCAR	-0.216***	-0.143***
	(0.037)	(0.029)
CONS	0.259***	0.226***
	(0.026)	(0.024)
R-squared	0.183	0.177
F-statistic	10.453	
p-value	0.000	0.000
Wald-statistic		164.904
p-value	0.000	0.000
Hausman test	13.350	
p-value	0.421	
Root MSE	0.089	0.089
Firms	62	62
Observations	682	682

Notes:
Standard errors are shown in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Source: Author calculation

The results for both methods suggest the significance of debt ratio, tax rate and noncurrent assets ratio as determinants for profitability and have the expected sign. Additionally, a Hausman test was performed to select the most appropriate model. The test statistic is 13.350 with 0.421 p-value, suggesting that random effects model is preferred.

According to REM results, the relationship between debt ratio and profitability is negative and statistically significant. Firms with a higher debt ratio may tend to be affected, since the proportion of profits dedicated to servicing debt increase. This result is consistent with pecking order hypothesis which state there is a hierarchy in financing sources, first internal sources, second low-risk debt and third equity. Regarding control variables included in the model, tax rate is significant at 5% level while noncurrent assets ratio is significant at 0.1% level. The negative correlation with noncurrent assets ratio suggests that growth lead to diseconomies of scale, while positive correlation with tax rate suggests that high tax payment lead to higher profitability.

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Overall, empirical results for Romanian companies are consistent with the findings from other empirical research. The relationship between profitability and debt ratio is negative, according to Goddard et al. (2005). Like Memon et al. (2012) tax rate is positively associated with profitability and like Burja (2011) noncurrent assets is negatively related.

5. Conclusions

This paper examines the impact of capital structure on corporate profitability for publicly Romanian companies. Limited studies have been conducted in this area so this empirical work will fill the gap in this field in Romania. On the basis of the estimation results and discussion, it is concluded that there is evidence for pecking order theory since profitability is adversely affected by capital structure. In addition, it worth to be noticed that firms with large amounts of noncurrent assets are under performing and rather generate diseconomies of scale, while firms with high tax rate perform better.

The results could have several implications for stakeholders, particularly investors and managers, since it provide a support in analyzing financial statements and making profitable investment decisions. Nevertheless, there could be implications for public policy and require further financial education. Thus, in a debt driven economy, a society can have an important role in generating economic prosperity and growth only if it can assimilate financial statements variables and is aware about their implications on firm profitability.

It can't be ignored that there are some limitations of the study, which require further research. Among these, the study could be improved either by using other estimation methods or additional variables. However, the results for the current model are significant and confirm the negative relationship between capital structure and profitability.

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